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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/751,231	12/29/2000	Richard N. Ellson	7610-0040	8767

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EXAMINER

TRAN, MY CHAU T

ART UNIT	PAPER NUMBER
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1639

DATE MAILED: 11/26/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/751,231

Applicant(s)

ELLSON ET AL.

Examiner

My-Chau T. Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 September 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-80 is/are pending in the application.
- 4a) Of the above claim(s) 11-18, 50-53, 55 and 57-80 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10, 19-49, 54, and 56 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 December 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 and 4. 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of Group I (Claims 1-49, and 54-58) in Paper No. 7 is acknowledged. The traversal is on the ground(s) that Group II (Claims 50-53) should be joined with Group I because "a plurality of integrated indicators necessarily includes one indicator". Group III (Claims 59-60) should be joined with Group IV (Claims 61-62) because any apparatus or method for attaching molecular moieties to a particular device must involve numerous common features as dictated by the device itself. Group V (Claims 63-71) be joined with Group VI (Claims 72-80) because they share common features.

This is not found persuasive because it is not "a plurality of integrated indicators" but "a plurality of different indicators" is stated in the independent Claim 50 of Group II. Although "a plurality of integrated indicators" would include the "one indicator", "a plurality of different indicators" would not necessarily include that "one indicator". For "a plurality of different indicators" would encompass different variations (combinations) of indicators in which a combination of indicators could exclude that "one indicator". In which case the scope of Group II differ from the scope of Group I, this would make the invention of Group II distinct from that of Group I. Therefore invention of Group II will not be joined with Group I.

With regards to the joining of Group III with Group IV and also to the joining of Group V with Group VI, because they have overlapping features is not found persuasive. Although there are some overlapping features (e.g. a substrate having an integrated indicator or molecular probe attached to the substrate) among these inventions of Group III and Group IV and that of Group V and Group VI, the search requirement for these inventions (apparatus and process) is

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*not* co-extensive that a search for one invention would *not encompass* the limitations of the other inventions thus resulting in divergent of the search evaluations. The search and examination of the inventions of Group III and Group IV or Group V and Group VI would be burdensome. Therefore, it is the examiner's position that Groups III should not be joined with Group IV and that Group V should not to be joined with Group VI.

The requirement is still deemed proper and is therefore made **FINAL**.

2. Claims 59-80 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected inventions, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 7.

3. Applicant's election without traverse of a species (1) (Claims 6-10), temperature, in Paper No. 7 is acknowledged.

4. Claims 11-18, 55, 57, and 58 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 7.

5. Claims 1-58 are pending. This Office Action is directed to the elected invention of Group I with the generic Claims 1-5, 19-54, and 56 and a species (1) of Claims 6-10.

***Drawings***

6. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character “13” has been used to designate disk (pg. 14, line 24), rectangular slide (pg. 19, line 9), and well plate (pg. 17, lines 2-3). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

7. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character “15” has been used to designate both exterior surface (pg. 14, lines 26-27) and interior surface (pg. 17, line 6). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

8. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: “25” of figure 2A and 2B. “E” of figure 3A. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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10. Claims 1-10, 19-54, and 56 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- a) The term “integrated indicator” of Claim 1 and 50 is vague and indefinite because it is unclear how does it relates with the probes. Is it by direct or indirect attachment? Or a binding interaction?
- b) It is unclear to what “condition” of Claim 1 is it referring to. It is the interaction of the probes with the analytes or the probes, analytes, and indicator interaction? Or the environmental “condition” affecting the probes and analytes interaction?

***Claim Rejections - 35 USC § 102***

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

12. Claims 1-10, 19-33, 38-49, 54, and 56 are rejected under 35 U.S.C. 102(b) as being anticipated by Nova et al. (US Patent 5,874,214).

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Nova et al. disclose a device that is combination of matrix materials with programmable data storage or recording devices (col. 4, lines 55-64). The matrices are generally insoluble materials used to immobilize ligands and other molecules (molecular probes) (col. 18, lines 33-39). The recording and storage device is in proximity with or in contact with the matrix (col. 5, lines 44-46). The recording device can detect the occurrence of a reaction and record the event in the memory (integrated indicators)(col. 37, lines 31-33). The sensor in the recording device would include a temperature sensor to record the temperature of the reaction (col. 38, lines 47-63; col. 49, lines 55-63; col. 53, lines 44-50) (referring to claims 5-6). Other type of sensors can be use in the combination of matrix materials with programmable data storage or recording devices such as a photodetector to detect the occurrence of fluorescence or other optical emission (col. 6, lines 25-27) (referring to claims 19-23), or electromagnetic tagging (col. 14, lines 49-57) (referring to claims 19-23 and 49). The composition of matrices with memories and molecules would include biological particles such as oligonucleotides, peptides, proteins, and cells (col. 10, lines 1-6) (referring to claims 28-32). The matrix would be in the form of a continuous surface such as a microtitre dish, or a glass slide (col. 12, lines 60-63) (referring to claims 33 and 43-46).

The features of remaining independent and dependent claims are either specifically described by the reference (e.g. detection time or reaction time), or constitute obvious variations in parameters which are routinely modified in the art (e.g. reaction temperature), and which have not been described as critical to the practice of the invention.

13. Claims 1, 43, and 56 are rejected under 35 U.S.C. 102(e) as being anticipated by Virtanen (US Patent 6,342,349 B1).

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Virtanen disclose a device comprise of an optical disk having a plurality of analyte-specific signal elements that is cleavable and the signal is detected from the cleave signal element (col. 7, lines 29-35). The cleavable signal element comprises a signal responsive moiety (indicator) attached to the cleavable spacer at its signal responsive end (probe) (col. 5, lines 30-36). The cleavable spacer has a substrate-attaching end. The device of Virtanen anticipates the presently claimed invention.

***Claim Rejections - 35 USC § 103***

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

16. Claims 1 and 34-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nova et al. (US Patent 5,874,214) in view of Wang et al. (US Patent 5,922,617).

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The device of Nova et al. is applied for the reasons discussed above.

The device of Nova et al. does not expressly disclose that the array comprises of 10, 50,000, 200,000, or 1,000,000 probes on the substrate surface.

Wang et al. disclosed a device in which the microarray would contain 10 or more probes (col. 2, lines 60-65). Wang et al. suggest that the number of individually addressable sites (probes) on an array would depend on the nature of the bound component, the source of the signal, the nature of the signal being detected, the nature of the bound array such as the size of the microarray or the manner in which it is produced (col. 3, lines 6-11).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include an array of 10 or more probes on the surface of the substrate as taught by Wang et al. for the device of Nova et al. One of ordinary skill in the art would have been motivated to include an array of 10 or more probes on the surface of the substrate in the device of Nova et al. for the advantage of detecting multiple analytes. Since both Nova et al. and Wang et al. disclose a device for detecting multiple analytes (Nova: col. 43, lines 26-28; Wang: col. 2, lines 49-59). Further, Wang et al. suggest that the number of probes on an array would depend on the nature of the bound component, the source of the signal, the nature of the signal being detected, the nature of the bound array such as the size of the microarray or the manner in which it is produced (col. 3, lines 6-11). Therefore, the choice of the number of probe on the surface of the substrate would depend on the availability of bound component and signal used.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to My-Chau T. Tran whose telephone number is 703-305-6999.

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The examiner is on ***Increased Flex Schedule*** and can normally be reached on Monday: 8:00-2:30; Tuesday-Thursday: 7:30-5:00; Friday: 8:00-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew J. Wang can be reached on 703-306-3217. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and 703-872-9307 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1123.

mct  
November 25, 2002

  
**PADMASHRI PONNALURI**  
**PRIMARY EXAMINER**